Nov. 27, 1923 **1,475,725**

H. D. STEINMARK

LOCK

Filed Feb. 13 1922 2 Sheets-Sheet 1

Fig. 1

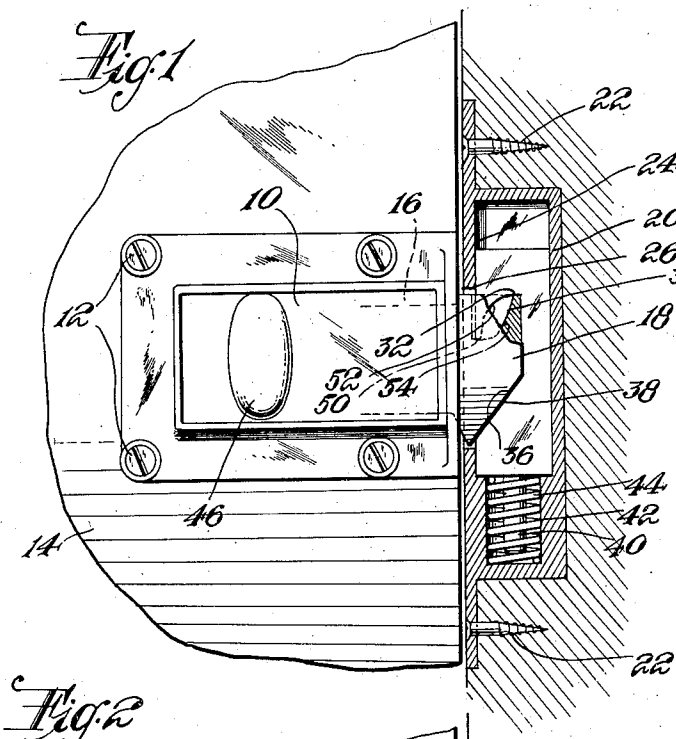


Fig. 3

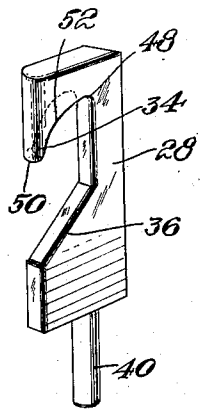


Fig. 2

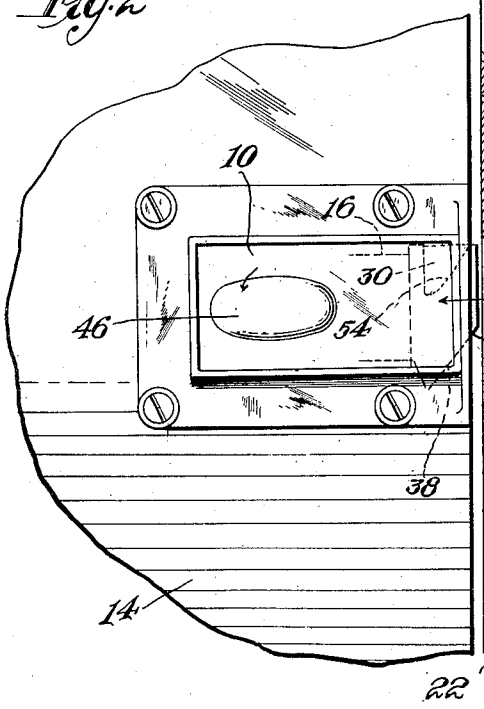
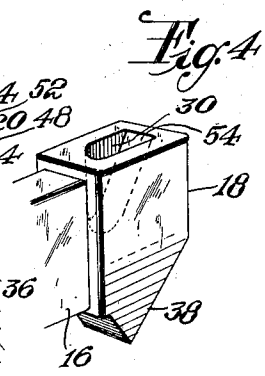


Fig. 4



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Fig. 5

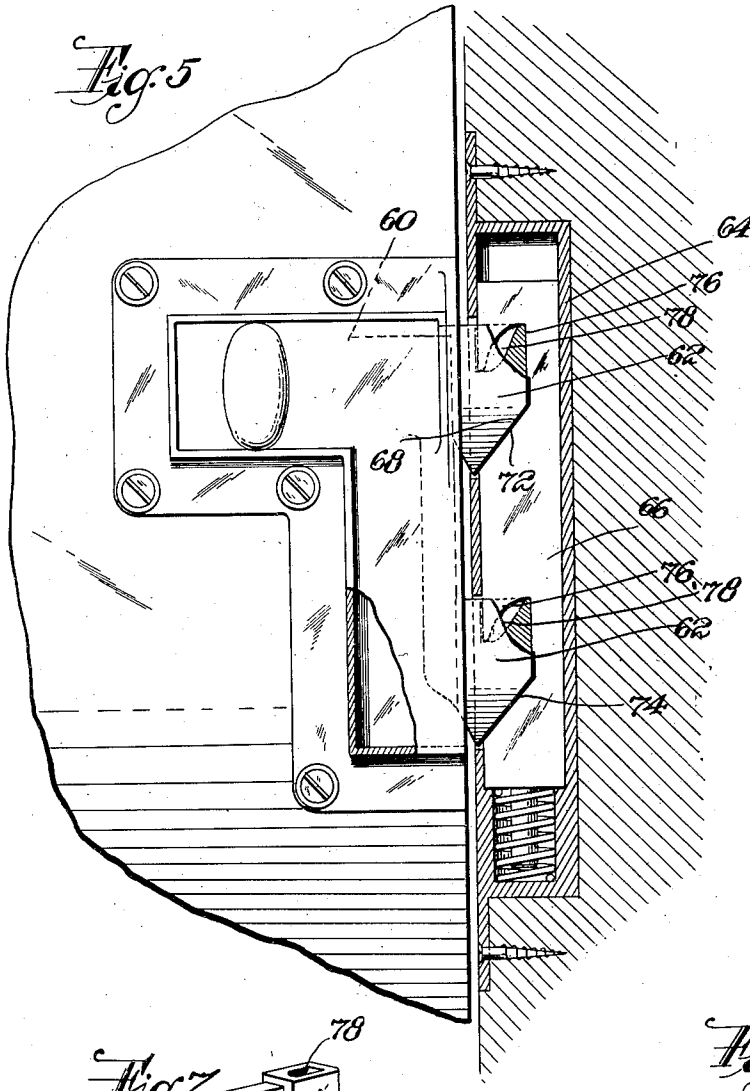


Fig. 6

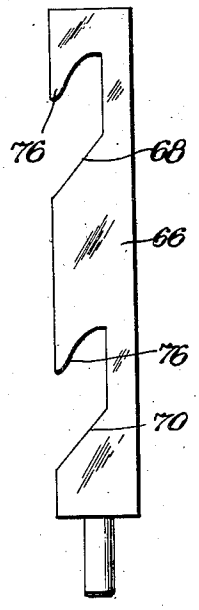


Fig. 7

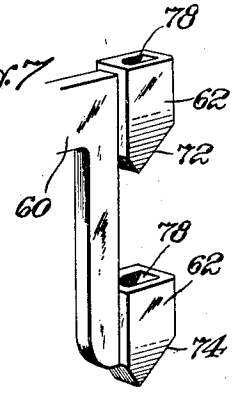
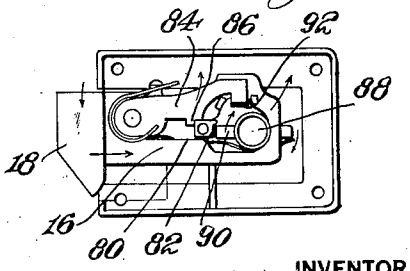


Fig. 8



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UNITED STATES PATENT OFFICE.

HARRY D. STEINMARK, OF BROOKLYN, NEW YORK.

LOCK.

Application filed February 13, 1922. Serial No. 535,993.

To all whom it may concern:

Be it known that I, HARRY D. STEINMARK, a citizen of the United States, and resident of the borough of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Locks, of which the following is a specification.

This invention relates to locks, and more particularly to mechanism for preventing the bolt of a lock from being retracted by jimmy or other tool inserted within the keeper of the lock.

A large proportion of the locks employed on the doors of dwelling houses are of a type such that the locking of the door serves only to prevent turning of the door-knob and leaves the bolt free to be retracted by means other than the knob except for the slight resistance afforded by a light spring. Other locks used are of types in which the bolts are locked against being retracted from the keeper, but the locking means is not of sufficiently heavy construction to resist the pressure which may be brought on the bolt by a jimmy or other tool which is inserted within the keeper and against the end of the bolt. Accordingly, in the use of locks as at present constructed it is a relatively easy matter to force open a lock if a burglar's jimmy or other suitable tool can be engaged against the projected end of the bolt within the keeper.

It is an object of this invention to provide means adapted to be used with locks of the usual types to render it impossible to retract the projected end of the bolt from the keeper by means of a jimmy or other tool inserted within the keeper, so as absolutely to prevent the forcing of such locks.

To this end an important feature of the invention resides in the provision within the keeper of a member adapted to serve as a guard over the projected end of the bolt. Preferably, and in the illustrated construction, the bolt of the lock is formed to present a substantially horizontal surface in which a depression is formed, and the guard comprises a member slidable vertically and being formed with a beveled surface adapted for engagement with the projected end of the bolt and with a part arranged to enter the depression in the bolt upon movement of the guard in the keeper against the resistance of a suitable spring. As will appear more clearly hereinafter, said part of the guard by its engagement with the depression in the bolt acts to lock the bolt against being retracted from the keeper.

Other objects and features of the invention will appear as the description proceeds and will be pointed out in the appended claims.

In the drawings in which like reference numerals indicate identical parts in the various views:

Fig. 1 is a view in side elevation and partly in section of a lock constructed in accordance with the invention and showing the parts in locked position;

Fig. 2 is a view similar to Fig. 1 but showing the parts in the positions occupied by them when the bolt of the lock is retracted;

Fig. 3 is a view in perspective of the guard provided within the keeper;

Fig. 4 is a view in perspective of the projected end of the bolt;

Fig. 5 is a view in side elevation and partly in section of a modified form of the invention;

Fig. 6 is a view in side elevation of the keeper employed in the lock as shown in Fig. 5;

Fig. 7 is a view in perspective of the projected ends of the bolt as shown in Fig. 5, and

Fig. 8 shows one form of lock to which the invention may be applied.

In the illustrated construction referring particularly to Figs. 1 and 4 inclusive, the lock comprises a casing 10 secured by screws 12 to the door 14 and includes a bolt 16 slidably mounted in the casing and having an end 18 adapted to be projected from the casing 10 within a keeper 20 mounted in the jamb. The keeper 20 is mortised into the jamb of the door in the usual manner and may be secured in place in the door-jamb by means of the usual screws 22. As shown, the chamber of the keeper is provided with an outer wall 24 which in the closed position of the door 14 is interposed between the chamber of the keeper and the edge of the door. The wall 24 of the keeper is formed with an opening 26 through which the end 18 of the bolt is adapted to enter the keeper. The wall 24 above and below the opening 26 and the other walls of the keeper 20 provide surfaces for guiding the guard member 28 for movement upwardly and downwardly within the keeper 20. The guard member 28 is preferably of equal

width with the projecting end 18 of the bolt 16 and is so formed as to embrace the projected end of the bolt 16 when in locked position. Such an arrangement of the guard 28 with reference to the projected end of the bolt 16 effectually prevents the end 18 of the bolt from being engaged within the keeper 20 by a jimmy or other tool by which the bolt might otherwise be retracted from the keeper.

In order most effectively to prevent the retraction of the bolt 16 by a jimmy or other tool, the guard 28 is preferably mounted for vertical sliding movement within the keeper 20 and is provided with a part constructed for interlocking engagement with the end 18 of the bolt. As shown, the means for providing an interlocking relation between the bolt and the guard 28 includes a depression 30 formed in a horizontally disposed surface of the bolt and a part 34 carried by the guard 28 and arranged to enter the depression 30. As shown, the part 34 is formed integrally with the guard 28 but it may be formed separately therefrom and secured to the guard in any suitable manner without departing from the scope of the invention.

In order to cause the part 34 of the guard 28 to enter the depression 30 of the bolt 16 upon movement of the bolt to locking position the guard 28 is formed to present a beveled or inclined surface 36 arranged for engagement with the end of the bolt, and the end 18 of the bolt is also preferably formed with a correspondingly inclined surface 38. With this construction it will be understood that when the bolt 16 is moved to project its end 18 within the keeper 20, the surface 38 at the end of the bolt will engage the surface 36 on the guard 28, thereby moving the guard 28 downwardly in the keeper and causing the part 34 of the guard 28 to enter the depression 30 in the end 18 of the bolt.

The guard 28 is formed at its end opposite from the part 34 with a reduced shank 40 received in a bore 42 in the keeper 20, and a coil spring 44 surrounds the shank 40 within the bore 42. Accordingly, the spring 44 acts to resist the movement of the guard 28 by engagement of the surface 38 of the bolt 16 with the surface 36 of the guard. The spring 44, however, is made of light construction so as not to prevent the bolt 16 from being readily moved to locked position by means of its operating knob 46. A line drawn from the base 48 of the part 34 to its point 50 (see Fig. 3) will be substantially parallel to the inclined surface 36, but the part 34 is preferably concaved on its inner surface between the points 48 and 50, as shown at 52, and the end surface 54 of the depression 30 is also preferably concaved, as seen in Fig. 1. By reason of the provision of the concaved surfaces 52 and 54 and the coil spring 44, the guard 28 will move freely in a direction to carry the part 34 out of the depression 30 when the bolt 16 is withdrawn from the keeper by means of the knob 46. The guard 28, however, not only prevents a jimmy from being engaged with the end 18 of the bolt 16, but even if such engagement of a jimmy with the end of the bolt were to be effected the guard 28 would not under such conditions move with relation to the end 18 of the bolt, and the part 34 of the guard 28 would consequently lock the bolt from being retracted.

The illustrated construction is adapted to operate as above described, not only when the parts are in the positions shown in Figs. 1 and 2, that, is with the depression 30 at the upward side of the end 18 of the bolt 16 and with the spring 44 at the lower end of the guard 28, but is also adapted to act with like efficiency if the parts are arranged in vertically reversed positions, that is in the positions illustrated when Sheet 1 of the drawings is turned up-side down.

In the construction shown in Figs. 5, 6 and 7 the bolt 60 is formed with two vertically spaced projecting ends 62 adapted to enter a keeper 64, as shown in Fig. 5, and the guard 66 is likewise provided with spaced inclined surfaces 68 and 70 arranged for engagement with similarly inclined surfaces 72 and 74 on the projecting ends 62 of the bolt. The guard 66 is further provided with parts 76 similar in form to the part 34 on the guard 28 and adapted to enter depressions 78 in the ends 62 of the bolt. The construction and manner of operation of this form of the device are in other respects similar to that hereinbefore described so that further description is unnecessary.

The device is adapted for use with locks of any ordinary type. In Fig. 8, however, I have shown one form of lock by way of example. In such lock the shank of the bolt 16 is formed as a plate provided with a slot 80 which loosely receives a post 82 secured fixedly in the lock casing. Pivoted to the shank of the bolt forwardly of the slot 80 is a spring pressed finger 84 provided with a shoulder 86 adapted to engage the forward surface of the post 82 to lock the part 16 in projected position. The operating knob 46 of the lock is connected to a rotor 88 provided with a lug 90 arranged for engagement with a downwardly turned portion 92 of the finger 84 and with the shank 16 of the bolt adjacent to the part 92. With this construction when the knob 46 and rotor 88 are turned in a clockwise direction, as shown in Fig. 8, the lug 90 engages the outwardly extended part 92 of the finger 84 and moves the shoulder 86 out of locking engagement with the post 82 and then acts against the inner surface of the slot 80 adjacent to the part 92 to retract the bolt 16

from its locking position. In locks of this character there is usually lost motion between the slot 80 and the adjacent sides of the post 82 in consequence of which the engagement of the lug 90 with the part 92 and the shank 16 of the bolt causes the projecting end of the bolt 16 to be swung downwardly to a more or less extent before the bolt begins its rearward movement. In a lock of this type it is probably not necessary to provide the surfaces 52 and 54 of the part 34, and the depression 30 respectively with as great a degree of concavity as in a lock in which the bolt has a straight retracting movement in a horizontal plane since the initial downward movement of the end 18 of the bolt will tend to avoid sticking or binding of the part 34 in the depression 30.

Having fully described the invention, what is claimed is:

1. A lock comprising a bolt, operating means for the bolt, a keeper to receive the bolt, means in said keeper engaged and moved by said bolt in the act of entering the keeper into an interlocking engagement with said bolt to avoid the engagement of a jimmy or like tool with the bolt end, and means to automatically move said last named means out of interlocking engagement with said bolt as the bolt is retracted from the casing in response to its operating means.

2. A lock comprising a bolt, operating means for the bolt, a keeper to receive the bolt, means in the keeper having a part adapted to interlock with the bolt, said bolt and last-named means having cooperating parts to automatically cause said first-mentioned part to interlock with the bolt as it enters the keeper, and means to shift said part out of interlocking engagement with the bolt as the bolt is retracted out of the keeper by its operating means.

3. A lock comprising a bolt, operating means for the bolt, a keeper to receive the bolt, a movable guard in the keeper having a part to interlock with the bolt, said bolt and guard having cooperating faces to shift the guard and cause said part to interlock with the bolt when the bolt is projected into the keeper, and yieldable means, acting to automatically shift the guard out of interlocked engagement with the bolt during the act of withdrawing the bolt by its operating means from the keeper.

4. A lock comprising a casing, a bolt movable therein, operating means for the bolt, a hollow keeper to receive the bolt end, a guard in the keeper movable in a path intersecting the path of movement of the bolt and having a projecting part adapted to enter and interlock with the bolt, said bolt and guard having mutually beveled faces to encounter and slide upon one another to effect a shifting of the guard and an entry of the projecting part into said bolt, and yieldable means to automatically restore the guard to initial position with the projecting part withdrawn from the bolt as the bolt is retracted by action of its operating means.

5. A lock comprising a casing, a bolt therein, operating means for the bolt, said bolt having a cavity with a concave outer wall, a keeper to receive the bolt, a guard movably mounted in the keeper and having a projecting part adapted to enter the cavity in the bolt when said bolt is projected into the keeper, said projecting part having a concave wall opposite the concave wall of the bolt cavity, and means to move the guard whereby to shift the projecting part out of the bolt cavity as the bolt is withdrawn from the keeper by the action of its operating means.

In testimony that I claim the foregoing as my invention, I have signed my name hereunder.

HARRY D. STEINMARK.